

# **Introduction to Information Technology**

## **(Applied Technology Education) Standards and Objectives**

A Project of the Utah State Office of Education



Steven O. Laing, Ed.D.  
State Superintendent of Public Instruction

Patty Harrington  
Associate Superintendent  
Curriculum Services

Mary Shumway  
State Director  
Applied Technology Education

Parker K. (Duke) Mossman  
Education Specialist  
Information Technology

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## **FOREWORD**

The State of Utah participated as a member of ten state consortium for the Information Technology (IT) Career Cluster project funded by the US Department of Education, and managed by the Education Development Center (EDC). As part of the project, a model of IT careers clusters was developed, and standards were identified. It was determined that a basic core of skills were needed by all students entering the IT field. It was also determined that a course that teaches the basic skills IT employees need was not currently available. The Introduction to Information Technology course has been developed to meet this need.

Introduction to Information Technology is designed as a one semester course geared to students who have determined that they have an interest in pursuing a career in an information technology field, but are not sure which area. This course is exploratory in nature, with the goal of exposing students to the four program areas in information technology to help them determine where their interests lie. Another goal of the course is to teach the basic foundation skills needed by all IT workers. Students taking this course should have already obtained keyboarding proficiency, and also completed the computer technology (computer literacy) course and/or required competencies.

This curriculum guide is designed only to meet the goals of Applied Technology Education (ATE) and is not founded on any specific hardware or software requirements. The purpose of this curriculum guide is to provide structure for the delivery of basic Core skills and knowledge in the Introduction to Information Technology course. This standardization of curriculum provides a consistent format for evaluation and certification of students' skills, while allowing programs to access a wide variety of delivery strategies and resources.

For further assistance with issues related to ATE programs in multimedia, contact the Applied Technology Education Division of the Utah State Office of Education at (801) 538-7840.

## ACKNOWLEDGMENTS

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Duke Mossman, Project Leader  
Utah State Office of Education

### Introduction to Information Technology Team Members

Lars Andersen, Salt Lake TC  
Gordon Anderson, Bridgerland ATC  
Stacie Bateman, Layton HS  
Warren Child, Cyprus HS  
Jim Duane, Juan Diego HS  
Sandy Hemmert, Granite SD  
Jolene Morris, University of Phoenix  
Kim Murphy, Weber HS  
Susan Raymond, West HS  
Matt Williams, Box Elder Jr. High  
Mike Young, Mountainland ATC  
Kimberly Ziebarth, Davis ATC

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# Introduction to Information Technology

**Grade Levels: 9-12**

**Units of Credit: .5**

**CIP Code: 11.0101**

**Prerequisite: Keyboarding Proficiency, and Computer Technology (computer literacy)**

## **COURSE DESCRIPTION:**

This course is for students interested in pursuing a career in the field of Information Technology. Students will be introduced to the four career clusters in information technology to determine where their interests lie. Students will complete assignments and projects in interactive media, information support and services, network systems and, programming and software development. Other topics and skills needed for a student be successful in the information technology field like ethics, security, privacy and SCANS skills will also be discussed.

## **STANDARDS AND OBJECTIVES:**

### **STANDARD**

**11.0101-01** Understand current issues related to Information Technology.

### **OBJECTIVES:**

11.0101-0101 Students will be introduced to the importance of ethics and ethical behavior.

11.0101-0102 Students will understand the importance of information privacy and security.

11.0101-0103 Students will be introduced to the skills identified by employers as those needed to be an effective and valued employee.

11.0101-0104 Students will understand the levels of education needed to be successful in the area of Information Technology that they are interested in pursuing.

11.0101-0105 Students will take an on-line IT interest survey.

11.0101-0105 Students will be introduced to the organization of a business and the role that Information Technology plays in the success of business.

### **STANDARD**

**11.0101-02** Complete projects and assignments in the area of Interactive Media.

### **OBJECTIVES:**

- 11.0101-0201 Students will understand the different types of media included in an interactive multimedia project.
- Text
  - Graphics
  - Audio
  - Video
  - Animation
- 11.0101-0202 Students will create original digital graphics through scanning and editing.
- 11.0101-0203 Students will create original digital audio through capture and narration.
- 11.0101-0204 Students will utilize the design model such as ADDIE to plan a multimedia project.
- 11.0101-0205 Students will use multimedia software such as PowerPoint, Presentations, iShell Etc. to create an interactive multimedia project on a topic of their choice which includes audio, animation, graphics and links for user input.
- 11.0101-0206 Students will create a web page using an HTML editor such as Dreamweaver, Frontpage Etc.
- 11.0101-0207 Students will be introduced to careers and educational options in multimedia and Web development.

## **STANDARD**

**11.0101-03** Complete projects and assignments in the area of Information Support and Services.

## **OBJECTIVES:**

- 11.0101-0301 Students will understand the input/output, processing and storage of data in a personal computer system.
- 11.0101-0302 Students will be introduced to the following basic components of a modern computer system: Hardware, Software, Firmware and Power.
- 11.0101-0303 Students will understand and demonstrate proper handling techniques and safety considerations for hardware components.
- 11.0101-0304 Students will identify and describe the functions of the basic components of a computer system: Processor, Motherboard, RAM/ROM, Hard Drive, Input/Output Adaptors and Removable Storage Devices.

- 11.0101-0305 Students will understand basic assembly and troubleshooting techniques for personal computer systems.
- 11.0101-0306 Students will be introduced to databases, and their different uses.
- 11.0101-0307 Students will be introduced to careers and educational options in technical support and database development.

**STANDARD**

**11.0101-04** Complete projects and assignments in the area of Network Systems.

**OBJECTIVES:**

- 11.0101-0401 Students will understand the uses of computer networks in today's society.
- 11.0101-0402 Students will be introduced to network operating systems.
- 11.0101-0403 Students will understand networking in a local and remote environment.
- 11.0101-0404 Students will define the media transmission required for successful network communication.
- 11.0101-0405 Students will define the communication devices required for successful networking.
- 11.0101-0406 Students will be introduced to careers and educational options in network administration.

**STANDARD**

**11.0101-05** Complete projects and assignments in the area of Programming and Software Development.

**OBJECTIVES:**

- 11.0101-0501 Students will understand the uses of programming concepts in the development of software applications.
- 11.0101-0502 Students will be introduced to program design using the software development process.
- 11.0101-0503 Students will create an application using a programming language such as QBASIC, Visual Basic, C++, Java, Scheme, Etc..
- 11.0101-0504 Students will create a Web page using HTML code with Java script.

11.0101-0505 Students will be introduced to careers and educational options in computer programming and software engineering.

**STANDARD**

**11.0101-06** Complete an end-of-course project and attend work-based learning activities.

**OBJECTIVES:**

11.0101-0601 Students will create an end-of-course project on an information technology topic or career of their choice. It is recommended that the students complete the project as a team. It is also recommended that the projects be in the form of a web page or PowerPoint presentation that can be delivered to the class as an oral presentation.

11.0101-0602 Optional: Students will participate in a work-based learning activity. Work-based learning activities consist of field trips or tours, guest speakers, job shadows etc.

# UTAH ATE SKILL CERTIFICATION STUDENT PERFORMANCE EVALUATION

Test Number: **#805** Test Name: **Introduction to Information Technology**

(PRINT) Student's Name: \_\_\_\_\_ Date: \_\_\_\_\_

(PRINT) Teacher's Name: \_\_\_\_\_ School: \_\_\_\_\_

Teacher's Signature: \_\_\_\_\_ District: \_\_\_\_\_

The performance evaluation is a **required component of the skill certification process**. Each student must be evaluated on the required performance objectives below. Performance objectives should be completed and evaluated anytime during the course. Students who achieve a 3 or 4 (moderately to highly skilled) on **ALL** performance objectives and 80% on the written test will be issued an ATE skill certificate.

## INSTRUCTIONS:

- Students should be aware of their progress throughout the course, so that they can concentrate on the objectives that need improvement.
- Students should be encouraged to repeat the objectives until they have performed at a minimum of a number **3 or 4 on the rating scale (moderately to highly skilled level)**.

4 = highly skilled	Successfully demonstrated without supervision
3 = moderately skilled	Successfully demonstrated with limited supervision
2 = limited skill	Demonstrated with close supervision
1 = not skilled	Demonstration requires direct instruction and supervision
- When a performance objective has been achieved at a minimum of 80% (moderately to highly skilled level), "**Y**" (**Y=YES**) is recorded on the performance summary evaluation form. If a student does not achieve a 3 or a 4 (moderately to highly skilled level), then an "**N**" (**N=NO**) is recorded on the summary sheet for that objective.
- All performance objectives **MUST** be completed and evaluated prior to the written test.
- The teacher will bubble in "**A**" on the answer sheet for item **#81** for students who have achieved "**Y**" on **ALL performance objectives**.
- The teacher will bubble in "**B**" on the answer sheet for item **#81** for students who have **ONE or more "N's"** on the performance objectives.
- The signed evaluation sheet(s) **MUST** be kept in the teachers' file for two years.
- A copy is also kept on file with the school's ATE skills certification testing coordinator for two years.

Introduction to Information Technology Performance Objectives					
Yes		No		Standard 1 - Understand current issues related to Information Technology.	
4	3	2	1		
				<ul style="list-style-type: none"> <li>● Demonstrated ethical behavior</li> <li>● Completed an on-line IT interest survey</li> </ul>	
Yes		No		Standard 2 - Complete projects and assignments in the area of Interactive Media.	
4	3	2	1		
				<ul style="list-style-type: none"> <li>● Created original digital graphics through scanning, editing and illustration</li> <li>● Created original digital audio through capture and narration</li> <li>● Created an interactive multimedia project using a design model that includes audio, animation, graphics and links</li> <li>● Created a web page using an HTML editing program</li> </ul>	
Yes		No		Standard 3 - Complete projects and assignments in the area of Information Support and Services.	
4	3	2	1		
				<ul style="list-style-type: none"> <li>● Demonstrated proper handling techniques of hardware components</li> <li>● Disassembled and rebuilt a computer system either individually, in teams or with the instructor</li> <li>● Created a flat-file database</li> <li>● Performed a database query</li> </ul>	
Yes		No		Standard 4 - Complete projects and assignments in the area of Network Systems.	
4	3	2	1		
				<ul style="list-style-type: none"> <li>● Accessed and used network resources such as files and printers on the school's LAN</li> <li>● Accessed Internet resources</li> <li>● Created a diagram of a LAN, WAN and MAN</li> <li>● Pinged a network</li> </ul>	
Yes		No		Standard 5 - Complete projects and assignments in the area of Programming and Software Development.	
4	3	2	1		
				<ul style="list-style-type: none"> <li>● Created an application using a programming language</li> <li>● Created a web page using HTML code with Java Script</li> </ul>	
Yes		No		Standard 6 - Complete an end-of-course project and attend work-based learning activities.	
4	3	2	1		
				<ul style="list-style-type: none"> <li>● Created end-of-course project on an IT topic or career (It is recommended that this project be completed as a team project)</li> <li>● Optional: Attended a work-based learning activity</li> </ul>	

## Resources

### Suggested Texts:

1. Discovering Computers 2004, A Gateway to Information, Shelly, Cashman and Vermaat, Course Technology, ISBN 0-7895-6704-0. ([www.course.com](http://www.course.com))
2. Using Information Technology Complete Edition, Willams, Sawyer and Williams, McGraw-Hill/Irwin, ISBN 0072485558.

### Teaching Resources:

1. Jolene Morris's Introduction to Information Technology Course on the Utah Electronic High School <http://ehs.uen.org/> - You need to register to access this site.
2. [www.scsite.com/dc2004/](http://www.scsite.com/dc2004/) (Activities for Discovering Computers 2004 Textbook)

### Software (Programs) Needed:

Operating system software: Windows platform with Sound Recorder, CD player, and Volume Control Mixer, or equivalent Macintosh operating system.

Photo editing software: Corel Presentations, Adobe Photoshop, paint or whatever comes packaged with the scanner.

Multimedia authoring software: iShell, MediaForge, Corel Presentations, PowerPoint or equivalent.

Web Browser Software: Netscape 5+ or Windows Explorer 5+.

Web Editing Software: FrontPage, Dreamweaver, GoLive or freeware equivalent.

Digital Audio Software: Windows Sound Recorder, CoolEdit, Sound Forge or equivalent.

Programming Software: QBASIC, Visual Basic, C++ or equivalent.

Word processing software: MS Word, WordPerfect, Etc.

Scanning software: Whatever comes packaged with the scanner.

### Other On-line Resources:

1. USOE Intro to IT Resource Page (<http://www.usoe.k12.ut.us/ate/it/introit.htm>)
2. USOE Intro to IT On-line Resources (<http://www.usoe.k12.ut.us/ate/it/cool.htm#introtoit>)
3. Cyber Careers (<http://www.cybercareers.org/>)
4. CompTIA Tech Career Compass (<http://www.tcc.comptia.org/>)

## **Hardware (Equipment) Recommendations for Intro to IT**

One computer per student that meets the following minimum specifications:

### **PC**

Pentium II processor (233+ mHz or higher)  
128+ RAM (as much as you can afford - more is better)  
Hard drive: 6 gig minimum (as large as you can afford - more is better)  
CD-ROM  
video card  
Sound card/speakers

### **Macintosh**

G3 processor (266 mHz or higher)  
128+ RAM (as much as you can afford - more is better)  
Hard drive: 6 gig minimum (as large as you can afford)  
CD-ROM  
video card  
Sound card/speakers

### **Other Equipment Needed (Required)**

1 or more Microphones  
1 or more CD Burners  
1 or more Digital Cameras  
1 or more Scanners  
1 or more Computer Systems for demo and tear down (functional computers are preferred but they can be nonfunctional)  
1 or more Toolkits and Wrist Straps  
Computer network with large hard-drive storage capacity (50 G+)  
Internet access  
An LCD projector and/or equivalent demonstration software